REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-15 are currently pending in the application; Claims 9 and 13 having been amended by way of the present amendment; and Claims 14 and 15 are added by way of the present amendment. Claims 9 and 13 have been amended to correct minor informalities as cited in the Official Action, and support for new Claims 14 and 15 can be found in the original specification, claims and drawings.[1] Thus, no new matter is presented.

By way of summary, the Official Action presents the following issues: Figures 13-14 were objected to as not being designated as "prior art"; the specification was objected to due to minor informalities; Claims 9 and 13 were objected to for lacking proper antecedent basis; Claim 13 was objected to under 37 C.F.R. § 1.75 as being a multiple dependent claim depending from a multiple dependent claim; Claim 1 was rejected under 35 U.S.C § 102(b) as being anticipated by Fukuoka (U.S. Patent No. 6,212,331, hereinafter Fukuoka); Claim 2 was rejected under 35 U.S.C § 103(a) as being unpatentable over Fukuoka; Claim 3 was rejected under 35 U.S.C § 103(a) as being unpatentable over Fukuoka in view of Kerr (U.S. Patent No. 5,844,600, hereinafter Kerr); Claims 4 and 7/4 were rejected under 35 U.S.C § 103(a) as being unpatentable over Fukuoka in view of Andrew (U.S. Patent No. 6,351,568, hereinafter Andrew); Claims 8-12 were rejected under 35 U.S.C § 103(a) as being unpatentable over Fukuoka in view of Thompson (U.S. Patent No. 4,661,862, hereinafter Thompson); Claims 5, 6, 7/5 and 7/6 were objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all limitations of the base claim and any intervening claims.

[1] New Claims 14 and 15 recite substantially similar features to original Claim 1.

Applicants appreciatively acknowledge indication of allowable subject matter. However, since Applicants consider that independent Claim 1 patentably defines over the prior art, the remaining dependent claims have been presently maintained in dependent form.

In response to the objection to the drawings, submitted herewith is a letter submitting drawing sheets along with two replacement sheets for Figures 13 and 14 adding the designation of "background art." Accordingly, Applicants respectfully request that the outstanding objection to the drawings be withdrawn.

In response to the objection to the specification, the specification is amended to correct the noted informalities. Specifically, the label identifying the "built-in-memory" has been changed from "180" to "108" to be consistent with the figures. Also, the label identifying the "stroboscope" has been changed from "20" to "29" to be consistent with the figures. In light of their formal nature, the changes to the specification do not raise a question of new matter. Accordingly, Applicant respectfully requests that the objection to the specification be withdrawn.

Claims 9 and 13 were objected to failing to have proper antecedent basis. In response, Claim 9 has been amended to recite "a time base" instead of "the time base." Also, Claim 13 has been amended to recite "a driving system" instead of "the driving system." Accordingly, Applicant respectfully requests that the outstanding objection to Claims 9 and 13 for failing to have proper antecedent basis be withdrawn.

Claim 13 was objected to under 37 C.F.R. § 1.75(c) as being a multiple dependent claim depending from a multiple dependent claim. In response, Claim 13 has been amended to no longer be in multiple dependent form. Accordingly, Applicant respectfully requests that the outstanding objection of Claim 13 under 37 C.F.R. § 1.75(c) be withdrawn.

The outstanding Office Action asserts that Fukuoka teachings all the elements recited in independent Claim 1. Applicants respectfully traverse this rejection.

Briefly recapitulating, Applicants' claims relate to an image processing circuit which processes raw image data picked up with an image pick up device in which compression means compresses A/D converted data representing the raw image data before temporarily transmitting the compressed data representing the raw image data to a buffer memory. The stored compressed data representing the raw image data is then transmitted from the buffer memory to an expansion means which reads and expands the read data representing the raw image data before forwarding this expanded data representing the raw image data to an image processing mechanism, which performs image processing operations on this expanded data representing the raw image data transferred from the expansion device. As explained in Applicants' specification, Applicants' invention improves upon conventional digital processing circuits by reducing the amount of memory required to process raw image data obtained directly from a CCD or CMOS sensor which is A/D converted to a digital image signal.[2] It should be noted that the image data is only A/D converted before the image data is compressed, stored, and then expanded. By performing the image processing in this manner, buffer memory size is reduced because the raw image data that is stored is compressed before being stored in the buffer memory. Thus, the claimed invention leads to an improved design for an image processing circuit which requires less memory than other prior art devices.

Claim 1 recites *inter alia*, an image processing circuit processing raw image data picked up with an image pickup device, comprising:

> "means for compressing the raw image data converted by and transferred from said A/D converting means;
> means for temporarily storing compressed data transferred from said compression means;
> means for reading said compressed data from said means for temporarily storing compressed data and expanding the same; and
> means for executing image processing on expanded data transferred from said expansion means."

[2] Specification at pages 1-2.

Turning now to the applied prior art, Fukuoka discloses a digital still camera including a charge couple device (CCD) (102) as an image pickup means. The received digital image is converted to digital image data by an A/D converter (105), before being processed by digital signal processing circuit (106) which performs gamma correction and aperture correction on the digital image data.[3] Therefore, the image data output from the digital signal processing circuit (106) is no longer raw image data but is instead error corrected and aperture corrected. The processed image data is then transmitted to an image data compression-extention circuit (107) where the processed image data is compressed.[4] The processed image data is output from the compression-extention circuit (107) and is then transmitted to a first-in-first-out (FIFO) circuit (108) and are transmitted to a memory card interface (I/F) (109).[5]

In Fukuoka, when data recorded in the memory card (110) is regenerated, image and sound data are read from the memory card (110) and transmitted to the FIFO circuit (108) or the central processing unit (CPU) (111) through the memory card I/F (109). The image data is then extended and decoded by the image data compression-extention circuit (107) and then outputted as a video signal through the digital signal processing circuit (106) and are D/A converted (121).[6]

Claim 1 recites that a compression means compresses digital image data obtained by A/D converting said raw image data. Therefore, the compression means in Claim 1 compresses the converted raw data from the A/D converter before any additional aperture corrections or formatting algorithms are performed on the data. On the other hand, Fukuoka describes that the raw image data received from the CCD is processed by digital signal processing circuit (106) which performs gamma correction and aperture correction on the

[3] Fukuoka at column 16 lines 47-55.
[4] Fukuoka at column 16 lines 55-60.
[5] Fukuoka at column 16 lines 60-65.
[6] Fukuoka at column 17 lines 22-29.

A/D converted image data, all as noted above. Thus, in Fukuoka, the image data that is compressed is not A/D converted raw image data. Instead it is data that has been A/D converted and processed by error correction algorithms in the digital signal processing circuit (106) before being stored in the memory. Therefore, the image data in Fukuoka is processed and is no longer "raw" image data when it is compressed and then stored in memory. Thus, Fukuoka fails to teach or suggest means for compressing the raw image data converted by and transferred from an A/D converting means, as recited in Claim 1.

Furthermore, Claim 1 recites that after the raw image data is compressed it is stored in a buffer memory, then transmitted to an expansion means so the raw image data is expanded before being processed by an image processing device. In contrast, Fukuoka describes that the image data is not expanded by the data compression-extention circuit (107) until the data is regenerated and retrieved from the memory card device. Therefore, the data has already been processed and conditioned by the digital signal processing circuit (106) for expansion and viewing, and thus the image data is no longer raw compressed A/D converted image data as recited in Claim 1. Therefore, Fukuoka fails to teach or suggest that the image data stored in the memory is compressed A/D converted raw image data, that is then transmitted from the memory to the expansion means to be expanded before being processed by digital image processing circuit, as recited in Claim 1.

Accordingly, Applicants respectfully request the rejection of Claim 1 under 35 U.S.C. § 102(b) be withdrawn. For substantially the same reasons as given with respect to amended Claim 1, it is also submitted that new Claims 14 and 15 patentably define over Fukuoka.

Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukuoka. The Official Action admits that Fukuoka "does not explicitly teach that the first and second fields are odd and even consisting of only odd and even lines, respectively." In response, the

Official Action takes official notice that such is a common driving method for generating interlace signals using an interlaced image sensor.

The Examiner may take official notice effects outside of the record which are capable of instant and unquestionable demonstrations being "well-known" in the art. *In re Ahlert*, 424f.2d1088, 1091, 165uspq418, 420 (ccpa 1970). As set forth in MPEP ¶ 2144.03, if an Applicant traverses an assertion made by an Examiner while taking official notice, the Examiner should cite a reference in support of the assertion.

Accordingly, Applicant respectfully requests that the rejection of Claim 2 under 35 U.S.C. § 103(a) be withdrawn, or that the Official Action provide support for the above-mentioned position for which Official Notice was taken.

As discussed above, Fukuoka, does not disclose or suggest compressing converted raw data, storing the converted and compressed raw data in a buffer memory, and then expanding the stored, compressed, and converted raw data before processing the raw image data. Likewise, neither Kerr, Andrew nor Thompson remedy this deficiency, and therefore, none of the cited references, either alone or in combination disclose or suggest the subject matter of Applicants' Claims 2-13 which include the above distinguished limitations by virtue of dependency. Therefore, the Official Action does not provide a *prima facie* case of obviousness with regard to any of the these claims.

Accordingly, Applicant respectfully requests that the rejection of Claims 2-13 under 35 U.S.C. § 103 be withdrawn.

As new Claims 14 and 15 provide limitations along the same lines as those of Claim 1, it is further respectfully submitted that these new claims patentably define over the references for the same reasons noted above as to Claim 1.

Consequently, in view of the present amendment and in light of the foregoing comments, it is respectfully submitted that the invention defined by Claims 1-15 is definite and patentably distinguishing over the prior art. The present application is therefore believed to be in condition for formal allowance and an early and favorable reconsideration of the application is therefore requested.

Respectfully submitted,

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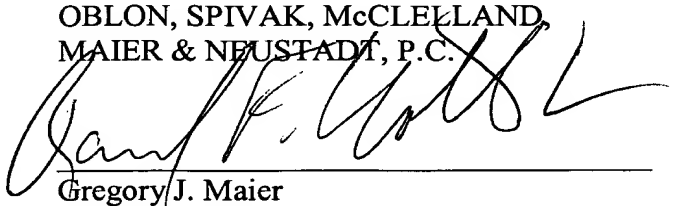

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